

WHAT IS CLAIMED IS:

1. A system for treating vasculature at a repair site, comprising:
a first treatment component;
a first sheath having the first treatment component and configured to
receive a subsequent treatment component after the first sheath is placed within the
vasculature and the first treatment component is deployed, the first sheath having a
length sufficient to extend to a repair site within the vasculature; and
a loading capsule configured to receive a subsequent treatment
component, wherein the loading capsule is configured to mate with the proximal
end of the first sheath.

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2. The system of claim 1, further comprising a plurality of subsequent
treatment components.

3. The system of claim 2, wherein the initial sheath is retracted to
deploy treatment components at a repair site.

4. The system of claim 2, wherein the first sheath is configured to
retain the plurality of subsequent treatment components in a compressed
configuration.

5. The system of claim 1, wherein the first treatment component is self-expanding.

6. The system of claim 5, wherein the loading capsule is configured to releasably retain the first treatment component in a compressed configuration.

7. The system of claim 1, further comprising a guidewire.

8. The system of claim 1, further comprising a pusher assembly.

9. The system of claim 8, wherein the pusher assembly is configured to simultaneously engage a plurality of treatment components.

10. The system of claim 8, the pusher assembly further comprising a tapered flexible tip.

11. The system of claim 8, the pusher assembly being adapted to accomplish cloverfolding of the first treatment component.

12. The system of claim 8, the pusher assembly includes an inner tube.

13. The system of claim 12, the inner tube including an inferior end, a superior end and an exit notch.

14. The system of claim 13, the inner tube further comprising a guidewire passageway between the superior end and exit notch.

15. The system of claim 1, wherein the loading capsule and first sheath have approximately equal outer profiles at a mating juncture therebetween.

16. The system of claim 8, wherein the pusher assembly is configured to advance treatment components substantially the length of the first sheath.

17. The system of claim 1, wherein the first sheath remains within vasculature during the delivery of multiple treatment components at a repair site.

18. A system for treating vasculature at a repair site, comprising:
a plurality of endovascular graft components;
a pusher assembly configured to releasably receive each of the plurality of endovascular graft components;

5 a loading capsule assembly configured to receive the pusher assembly;
and

an introducer sheath configured to mate with the loading capsule assembly and to facilitate the transfer of the plurality of endovascular graft components from the loading capsule assembly.

19. The system of claim 18, wherein the introducer sheath and the loading capsule have substantially the same outer profiles at a mating juncture therebetween.

20. The system of claim 18, further comprising a guidewire.

21. The system of claim 18, wherein each of the plurality of endovascular grafts are self-expanding.

22. A method for treating vasculature at a repair site using a system including an initial introducer sheath having a distal end and configured to receive an endovascular graft and configured to receive subsequent endovascular graft components after placement of the introducer sheath within vasculature, the introducer sheath extending to the repair site, comprising:

gaining access to vasculature;
inserting initial introducer sheath loaded with the endovascular graft component within vasculature and positioning a superior end of the initial introducer sheath at the repair site;

retracting the initial introducer sheath to deploy the endovascular graft component;

inserting a subsequent endovascular graft component in the distal end of the initial introducer sheath;

5 advancing the subsequent endovascular graft component within the initial introducer sheath; and

deploying the subsequent endovascular graft component at the repair site by retracting the initial introducer sheath.

23. The method of claim 22, wherein the system includes a pusher assembly and a loading capsule assembly, comprising:

configuring a plurality of subsequent endovascular graft components on the pusher assembly;

5 mating the loading capsule with the introducer sheath; and

advancing the pusher assembly first through the loading capsule and then into the introducer sheath.

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